1: Underhill E-5 (1931-1935)1946 NU28 Papago NU28

FOREWORD

THE following study was made between the years 1931 and 1935, in a series of sojourns with the Papago, totaling some fifteen months. It is to be considered as a sequel to a previous paper on Social Organization (Underhill, 1939) and uses data furnished by many of the same informants.

The study was made principally on the Sells reservation, the largest of three now occupied by the Papago, with a population (1940) of 5,577. At that time the San Xavier reservation had 513 and Gila Bend 127. Also, some visits were made across the Mexican border, where once there was a large Papago population. At present there is scarcely a village there which can be called exclusively Indian. The only one which holds a yearly Papago ceremony (Quitovaca) draws its performers largely from the American side. In Arizona, on the contrary, the Papago are a segregated group, with many ceremonies intact and others vividly remembered. Much regional difference was found, so that even on the Sells reservation ceremonial variations had to be traced through northern, southern, and western Papago.

Each village or group of related villages was found to have its specialist, usually hereditary, for every ceremony. A few of the more conservative objected to revealing their lore, but most finally consented to speak, always through an interpreter from the local group. Informants and interpreters are numbered for purposes of reference, and the number of each appears in parenthesis in the text following any statement for which he is the special authority.

Songs and ceremonial speeches were recorded in text, with interlinear translation. Here, there appears only the free transla-

1: Underhill E-5 (1931-1935)1946 NU28 Papago NU28

753 times had a relation to traits in the animal. Thus, most coughs came
825 from the deer, "because he snorts and snuffles." Head lice were from the eagle, usually infested with them. Headache and dizziness were from the horse, "because you feel that way when he throws you." Certain animals were particularly common as avengers, the larger ones appearing oftenest. The writer, when staying in a Papago house, was once caught by her hostess swatting flies. She attempted to excuse the slaughter by explaining: "You know, we white people are peculiar. We think flies bring disease."

"Oh," replied the Papago, "we think disease comes from animals, too, but we wouldn't pick on anything so small as a fly. We'd think of big ones, like the badger or the deer."

727 The animals came unsought to their "meeters," giving, perhaps,
739 one song which could be used to evoke their good will.[3] Both men and women received these songs, and often those not otherwise given to dreaming managed this one contact with the supernatural. Said one woman:

> I was out in the desert one day and saw a horned toad looking at me. I knew he meant to say something, and I thought about it. That night, I waked up, and a song began to come to me. But I couldn't get it all. Next morning, I lay still and thought, and then I began to sing it. It was about the horned toad.
>
> For a long time nobody knew anything about it except that my family heard me singing. At last my mother was very sick. They had other singers and nothing had happened. My family asked me to try, but I was ashamed. At last I did, and she got well. Then other people asked me.(26)

752 One modern singer cures injuries resulting from falling off a
776 horse or being kicked by horses and cattle. Since these animals are
777 importations from the whites, his visitant is another white importation, the devil.

[114] [3] Russell says nothing about singers of animal songs among the Pima, yet they must have existed. He gives a list of symptoms and procedures (pp. 262–65) very similar to the ones quoted here. Some of his medicine songs (pp. 312–14, 317, 319, 320–21) are obviously those given by animals. His statement is that these are a remedy for animal-sent disease, and, by inference, the singer is the shaman. However, in the case of the dog disease (p. 263) "someone who knows the dog song is called in to sing." Very likely, there were singers for the other songs also.

2: Underhill E-5 (1931-1935)1939 NU28 Papago NU28

FOREWORD

The American Papago are found on three reservations, a large one and two small ones, in the southern part of Arizona, near the Mexican border. To the south are the Mexican Papago who live in the same villages with Mexicans and have largely intermixed with them. To the north are the Gila Pima, another branch of the same people who have had much more contact with White Americans than have the Papago. To the west and south are the small groups of Sand Papago, still largely unknown.

American Papago, Mexican Papago and Pima were once part of a large corn raising culture which included the Opata, Tepecano, Tepehuane, and other Sonoran peoples now extinct. The nature of their culture has been a matter of great interest as a link between Mexico and the cultures of the Southwest. The Papago were chosen for study because, though they were not so advanced as their congeners, their position in the desert has left them far less subject to White influence. Their reservation was set apart only in 1917 and they still retain many customs and ceremonies abandoned both by Pima and by Mexican Papago.

Five sojourns were made with the Papago: in June — October 1931, September — October 1932, February — October 1933, November — January 1934, October — November 1935. Most of the time was spent on the Sells reservation, the largest of the three though a few weeks were spent at San Xavier and some days below the Mexican border.

Even among the American Papago it was found that there were decided differences in dialect, customs and ceremonies and an effort was made to get data from each of the three important groups. One of these was often completely ignorant of traditions known to the others, so that it was no uncommon experience to have an informant in one village deny with amusement the possibility of some practise which those in the next village acknowledged as traditional. Since there are over 5000 Papago it was possible to get many points of view and their presence makes one realize how many shadings are found in a living culture which are lost or even distorted in those where only one or two informants are available.

Interpreters were used through the whole period, since I did not trust my rough conversational knowledge of the language

3: Underhill E-5 (1931-1935) 1936
NU28 Papago NU28

The essential differentiation between Papago and Pima, which is now so obvious, began at this time. The Pima adopted American names and American clothing, and by 1871 had an American school. Meantime the Papago, when they spoke any language at all but their own, spoke Spanish, wore mantillas, and regarded the Altar Valley as their source of culture. More important still, the Pima gave up most of their ancient ceremonies while the Papago continued theirs.

Among the most important had been the ceremonies for war. The marauding Apache, in the hills to the east of Pimeria, had provided constant persecution since Kino's time, but in 1887 they were subdued by the United States, with the help of both Pima and Papago.

After this, scalps were no longer taken, and the important ceremonies of the warpath, of victory, and of warrior's purification were abandoned. But, until the present generation, the Papago continued their intervillage games with the accompanying dances, their cleansing ceremony for food, and their driving away of evil. Even yet, the northern part of the reservation ferments liquor from the giant cactus fruit and drinks it ritually as a magic to saturate the earth with rain. The shamans still practise, and the lay curers dream songs which give each one power over some particular disease sent by a particular animal. Other power can still be obtained, if not from scalps, then at least by the killing of an eagle or the ritual fetching of salt from the Gulf of California. Most of these ceremonies, as they occurred some fifty years ago, are described in the succeeding pages.

The writer made a series of ethnological studies among the Papago under the auspices of Columbia University, covering the periods June to October 1931, February to October 1933, November to January 1934, and October to November 1935, much of the work being financed by the Columbia University Council of the Social Sciences. During most of this time the narrator of the following autobiography, Maria Chona, acted as informant, hostess, guide, and means of introduction to the various villages, in most of which she had relatives or descendants.

Chona is a corruption of the Spanish name Encarnacion, with which the old woman had been baptized on a childhood trip to Mexico. She was the daughter of a prominent leader, José María, nicknamed Con Quien, the name of a Spanish card game. Since the words themselves would have little significance, the nickname has been translated hereafter as "The Gambler." Chona was inordinately proud of this father who had been appointed village chief or "governor" when the Papago first came under American supervision. The Papago custom in most ancient times had been to have a ceremonial leader who performed a few executive functions, but

4: Joseph et al D, E-5 (1942-1943) 1949
NU28 Papago NU28

INTRODUCTION

PILOT STUDY AND GENERAL PROCEDURE

114 After the acceptance of the Indian Education Research Project by the Papago Tribal Council in February, 1942, a three-month "pilot" study was conducted on the Papago Reservation by Dr. Laura Thompson, Project Co-ordinator, Dr. Ruth Underhill, and Dr. Alice Joseph. Dr. Underhill, anthropologist with the Bureau of Indian Affairs, had already made extensive field studies among the Papago, and Dr. Joseph had worked with the group for a year in the capacity of Reservation field physician. With the help of the Tribal Council, the Sells Parent-Teachers' Association, and the Indian Service personnel, especially D'Arcy McNickle, field representative, and the teachers at the Sells, Vamori, Gu Achi (Santa Rosa), Choulic, Schuchk (Santa Rosa Ranch), and Kohatk schools, the investigators tried out a number of different kinds of tests and field procedures. Based on results of the "pilot" field study, the following general procedure was adopted for the project as a whole:

125 The personalities and life-histories of a representative sample of children from each selected community were studied by means of a battery of psychological tests of both the projective and the performance types, supplemented by interviews with parents, teachers, and other community members and by medical examinations. The systematic study of individual personalities was limited to children of school age (six to eighteen years) because of their greater accessibility for the testing program. Much of the testing and interviewing was done by Indian Service teachers, trained and supervised by members of the research staff. Medical examinations and tests requiring experienced technicians for their administration, such as the Rorschach and the Thematic Apperception (adapted), were given by qualified staff personnel. The testing program is described in chapter xi.

122 Background data concerning the culture, the geographic environment, and the history were collected by anthropologists, who also drew on the literature, both published and unpublished, and on long-range plans prepared by the administrative personnel in co-operation with the Indians of each Agency.

Field findings were analyzed and interpreted by Project technicians at the University of Chicago.

SELECTION OF PAPAGO CHILDREN AND VILLAGES TO BE STUDIED

121 Owing to rather considerable regional differences in the degree of white contact on the Papago Reservation and to local variations in culture, it seemed advisable to select children from two areas, one representing a more acculture-

5: Castetter & Bell N-5 (1938-1940 1942
NU28 Papago NU28
Pima NU29

PREFACE

Scattered data on the early agriculture and other aspects of the economic life of various Indian groups in the Southwest are available in the literature, but treatises covering the primitive basis of subsistence of specific Indian groups, such as Hill's *The Agricultural and Hunting Methods of the Navaho Indians* and Whiting's *Ethnobotany of the Hopi*, are rare. Wilson's *Agriculture of the Hidatsa Indians*, a Plains tribe, must be regarded as the best account of the technique of Indian agriculture yet published. It is our purpose, therefore, to issue within the next few years a series of comprehensive studies, of which this is the first, presenting the early basis of subsistence of the several Indian groups in the Southwest, with special emphasis placed on agriculture.

The material herein presented is based upon field studies made by the authors among the Pima-Papago in the fall of 1938, 1939 and 1940, supplemented by data gleaned from the relevant historical, ethnographical and archaeological literature. The field studies were made among the Pima on the Gila River Indian Reservation, centering at Sacaton, Arizona; the Papago on the Papago Indian Reservation with headquarters at Sells, Arizona; the Papago on the reservation at San Xavier; and a few Papago on the so-called Maricopa Indian Reservation at Maricopa, Arizona.

The method followed in doing the field work was for the authors to work independently, each with his own informants and interpreters, then compare notes at the end of each day.

Obviously, differences in agricultural technique exist in different parts of the Papago and Pima territories. There is always danger of over-formulating procedures, such as the method of planting, and the reader is cautioned against regarding any such operation or aspect of agriculture as stereotyped. It is realized that among both peoples sub-units

6: Densmore E-5 (1920)1929 NU28 Papago NU28

FOREWORD

●114 The songs of a desert people are here presented, and will be found to contain interesting contrasts to the songs of the woodland, prairie, and high plateau tribes previously considered.[1] The Papago are a gentle, agricultural tribe living in Sonora, Mexico, and southern Arizona. Their songs were recorded at San Xavier, Sells, and Vomari, on the Papago Reservation in Arizona, during the spring of 1920 and the following winter.

000 The writer desires to acknowledge the assistance of her principal interpreters, Harry Encinas of San Xavier, who was formerly a student at the United States Indian School, Carlisle, Pa., and Hugh Norris, of Sells, the official interpreter of the Indian agency. Without the interest and cooperation of these interpreters it would have been impossible to win the confidence of the Papago and make so intimate a study of their music.

[1] Chippewa Music, Bull. 45; Chippewa Music II, Bull. 53; Teton Sioux Music, Bull. 61; Northern Ute Music, Bull. 75, and Mandan and Hidatsa Music, Bull. 80, Bur. Amer. Ethn.; Music of the Tule Indians of Panama, Smithsonian Misc. Colls., vol. 77, no. 11.

[p. v]

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6: Densmore E-5 (1920) 1929NU28 Papago NU28

tion and it was the opinion that there was no mixture with Mexican or Spanish. The Government maintained four day schools on the reservation.

The study of Papago music was begun at San Xavier, near Tucson, Ariz., in February, 1920. The Papago village is near San Xavier Mission, which was established in 1692. At this mission the Franciscan Fathers minister to the Indians, who number about 700 in this locality. The Government agency was located here in 1915, but was moved two years later to Indian Oasis, now known as Sells, Ariz. The Papago at San Xavier live in adobe houses and still grind their own corn, but are adopting a general use of food supplies purchased in Tucson. (Pl. 2.) The country around San Xavier is desert with mesquite and cactus. There are rugged hills and deep gorges cut by rivers that are raging floods at some seasons and "dry runs" at other seasons. The principal varieties of cactus are the saguaro or giant cactus, and the cholla. (Pl. 3.)

On a hillside near San Xavier is an old burial place. (Pl. 4, *a*.) The burial spaces are formed by building a low stone parapet on the side of the hill and roofing it with heavy timbers thrust into the hillside. The bodies were placed in these spaces, or shelters, and all openings were closed with stones. After a suitable time the bodies were taken out and others were placed in the inclosure. There were compartments in these burial chambers and several bodies were placed in each compartment. They have not been used in recent times and some remain tightly closed, while in others it is possible to see parts of skeletons and fragments of various sorts. Plate 4, *b*, *c*, shows the same opening, one being at a distance and the other showing the interior, where a skull can be seen. Near it was a bone that appeared to be part of a leg or arm. Scattered about were bits of leather resembling parts of a saddle. This place is particularly sightly. It faces the south, with a magnificent sweep of view. The mountains in Mexico can be seen at a distance of about 40 miles, while in the foreground is an expanse of desert. The old and new are strangely mingled here, as it is in this desert that the Government is establishing (1921) an irrigation system by means of which the Indians will be able to irrigate their land.

A further study of Papago music was made in November and December, 1920, at Sells, more than 60 miles west of Tucson. Songs were also recorded at Vomari village, and information was obtained at Santa Rosa, the former being in the extreme southern and the latter in the extreme northern part of the reservation. The customs and songs differ somewhat in different localities, and numerous photographs were taken showing the geography of the country. Between Sells and Vomari the country is more mountainous than in the vicinity of San Xavier, the most prominent mountain being Baboquivari

8: Pijoan, Elkin & Eslinger D-5 (ca. 1942)1943
NU28 Papago NU28

262 pepo; Cucurbita moschata), dried chili (Capsicum annuum), a native spinach or pigweed (Ameranthus Palmeri), and whole [251] wheat and peeled wheat (Tricitum vulgare). The majority of these foods are dried for storage.

222 The Papagos utilize for consumption the available varieties 262 of cactus as they did aboriginally, gathering the fruits of the 252 cholla (Opuntia echinocarpa) and various other kinds of prickly pear (Opuntia spp.) and the sahuaro (Carnegiea gigantea). The fruits are eaten in large quantities during season and in most instances these are baked for 24 hours in pits partially filled with hot stones; the surplus is dried for storage. The sahuaro fruit is often prepared as a syrup or jam. The seeds of the cactus are dried and later these are ground into a meal from which they prepare a gruel. In most of their cooking the Papagos use quantities of fat, especially lard or vegetable shortening.

146 In general it can be said that the diet of these people is one rich in cooked carbohydrate, with occasional animal protein and, in rare instances, cooked green fruits or vegetables. The Papagos drink but little milk (except from the breast during infancy); most of the natives in the outlying districts drink no dairy milk at all. As a result of their diet numerous avitaminoses occur, superimposed one on the other; the deficiencies may be subclinical or threshold in character due to a continued shortage of vitamins in the diet.

ASCORBIC ACID STUDIES

114 Various studies in the literature indicate that the ascorbic 146 acid content of the plasma and the amount excreted are an index of the previous dietary intake (Belser, Hauck and Storvick, '39; Heinemann, '38). On the other hand, reports have appeared where the blood analyses themselves are used to determine the actual state of ascorbic acid nutrition (Minot, Dodd, Keller and Frank, '40). In some instances the blood and urine analyses have been supplemented by the determination of ascorbic acid in the dietary intake (Todhunter and Robbins, '40: Goldsmith, Ogaard and Gowe, '41). However, as Bessey and White ('42) have pointed out, the practical problem is one

8: Pijoan, Elkin & Eslinger D-5 (ca. 1942)1943
NU28 Papago NU28

which involves the dietary intake and the level of ascorbic acid in blood plasma. The dietary intake of ascorbic acid found necessary to maintain a plasma level of this organic acid has varied with the techniques used by investigators. Widenbauer ('37) determined that a daily intake of 22 mg. was necessary to maintain a fixed plasma ascorbic acid concentration; Hathaway and Myer ('41) reported 31 mg., and Bessey and White ('42) in careful studies of children arrived at the conclusion that 3 ounces of orange juice plus what was present in the diet seemed an ideal intake to maintain a level of presumably 40–50 mg. a day. It can be assumed, on the basis of such investigations, that from 30–50 mg. are required to sustain ascorbic acid economy. It is not the purpose of this communication to ascertain the ascorbic acid requirements of Papago Indians but rather to ascertain the amount of ascorbic acid in their food and the plasma level. At the onset we were intrigued by the frequent occurrence among the Papagos of the common finding of a hemorrhagic diathesis in their gums, and in some cases on the ankles and other portions of the body that were most subject to trauma. We felt that the disease of latent or subclinical scurvy was a possibility among these people and that this deficiency might be responsible for its numerous insidious effects.

The method of assay for plasma ascorbic acid was that of Mindlin and Butler ('38) but without the use of cyanide; and that described by Bessey ('38) for foods. Two groups of children, from 6 to 15 years of age, were studied: a group at the Sells School where school lunches are provided, and a group in an isolated community known as Cowlic. School children were used because they were more acculturated and cooperative, the adults being quite primitive and to a greater degree intractable and less amenable to study.

The plasma ascorbic acid findings among twenty-eight children were as follows: one child had a value of 0.660 mg. per cent, which was the highest content observed; two had values of 0.528 mg. per cent, and the rest varied from the lowest ascorbic acid content of 0.264 mg. per cent to 0.396 mg. per cent.

10:Dolores I-5 (1911-1919) 1923
NU28 Papago NU28

PAPAGO NOMINAL STEMS

JUAN DOLORES

EDITED BY J. ALDEN MASON

INTRODUCTION

BY

J. ALDEN MASON

114 128 The Papago nouns here given have been gathered mainly from the texts of Juan Dolores written for the University of California in the years 1911–1913 and 1918–1919. This considerable body of material was typewritten by the editor and all nouns excised from the carbon copy, arranged, and compared. To these nouns was then added the large number of nominal stems published as a part of the author's *Papago Verb Stems*[1] and, to make the list as complete as possible, the nouns collected by the editor, in text and grammatical notes, in the winter of 1918–1919, were added. The various renderings were then compared, the standardized stems divided into natural groupings, and the manuscript typed.

128 [193] The seven general groups of animals, body parts, botanical terms, natural phenomena, artifacts and manufactures, personal categories, and abstract terms have been observed, and within each the stems have been arranged in the phonetic order a, e, i, o, u, m, n, l, s, c, h, v, w, b, p, d, t, dj, tc, g, k. Words of doubtful form or meaning and all *hapax legomena*[1] have been starred with an initial asterisk and words derived from Spanish or other languages put in italics.

104 A brief key to orthography and pronunciation is all that can be attempted here. The phonetics of Papago have been described by A. L. Kroeber in his explanatory note to the author's abovementioned contribution, and the orthographic system there developed has been here adopted with slight variations. They also differ in very slight degree from those of Tepecano described more fully by the editor.[2]

[1] Present series, x, 241–263, 1913.

[2] Tepecano, A Piman Language of Western Mexico, Ann. N. Y. Acad. Sciences, xxv, 1917.

1 [ie., words cited only once in the texts referred to. —Analyst]

[p. 19]

10: Dolores I-5 (1911-1919) 1923
NU28 Papago NU28

104 The symbol *e* has been used in place of the ü written by the author and the ö preferred by the editor. This has been done primarily for typographic reasons, but the substitution is not a random one, inasmuch as the ö of the Piman group of languages relates to the *e* of the other Sonoran and Uto-Aztekan languages.

114 *l* as an initial sound is found solely in words of Spanish origin.
194 The writer frequently heard and wrote it as *r*.

The question of the sonant stops and affricatives is a most difficult one. As in Tepecano, the difference is very slight and confusion certain. The editor was frequently at fault in his renderings while the author was never fully convinced of the existence of sonant stops. Taught at first to write all as surds, he was never able accurately to distinguish between them. However, the surd stop is always preceded by a voiceless sound, generally either the aspirate *h* or a voiceless vowel, while the sonant stop is as invariably preceded by a voiced sound or a glottal stop. This then is a certain criterion when the determining factors have been correctly noted. Unfortunately this was frequently not the case. The criterion, moreover, was useless in the case of initial stops since, in the author's texts at least, words were written with their phonetic values when isolated. Consequently it has been impossible in many cases to determine whether a given stop is surd or sonant. Only when the testimony was overwhelming —uniform phonetic rendering, or sonant rendering by the editor together with a sonant correspondent in Tepecano—was the author's surd changed to a sonant. In all doubtful cases, the stop has been left written as a surd, though generally the preceding sound is sufficient to identify its nature.

122 An effort has been made to give each noun in its simplest form. It will be noted that the orthography frequently differs somewhat from the form given in the author's *Verb Stems*. There the stems were given in the phonetic forms they take when isolated; in this case all changes due to phonetic laws have, as far as possible, been eliminated.

128 The editor must plead guilty to numerous inconsistencies in the
193 preparation of this article. While most of the nouns given are true stems, a few cannot qualify under this title and are given merely because they are important and occur in texts or notes. In this class are words, usually pertaining to artifacts and manufactures, ending in the instrumental suffix *-kuht*, and others ending in the suffixes

12: Hill Y-5 (ca. 1940) 1942 NU28 Papago NU28

NOTES ON PAPAGO POTTERY MANUFACTURE AT SANTA ROSA, ARIZONA

101 The Papagos occupy an extensive stretch of territory in the southern and southwestern portions of the state, south of the Pima. San Xavier, a small reservation, is situated near the city of Tucson; to the southwest lies the Sells area where the majority of the people live. Papago rancherias extend for a considerable distance into Sonora, [114] Mexico. Santa Rosa, where this study of the potter's craft was made in 1935, is the largest and most important village on the several reservations.

323 Pottery making, next to agriculture and stock raising, is probably the greatest industry among the Papagos. Technique as observed at the village of Santa Rosa is quite similar to that recorded by Russell[1] for the Pima, differing from it only in minor details.

317 Clay for the manufacture of pottery is of two types—a rather coarse red material
323 containing a large amount of hematite, and a finer-grained white clay. Both kinds are obtained from beds near Covered Wells, thirteen miles west of Santa Rosa. The material is first dried thoroughly by spreading it in the sun. As the red clay is mixed with small pebbles and fragments of broken rock, winnowing is necessary before it can be used. In former times, this was accomplished by tossing the material in a basket, but at present, it is sifted through a piece of screen.

323 Tools consist of containers for the clay and water, a curved wooden paddle, a large piece of cloth (later twisted to form a support for the vessels), an anvil (a small round stone), and several smoothing and polishing pebbles. In previous times, containers were baskets and pottery vessels; now these have been supplanted largely by burlap sacks for the clay and lard pails to hold the water.

The clay is first mixed with a little sand, then dried manure is added for a temper. Sufficient water is used to moisten the material thoroughly, and the whole mass is kneaded. The bottom of another vessel serves as a form. Ashes are smoothed over its surface to prevent the moist material from sticking. Taking a lump of clay about the size of her two fists, the potter pats and works it between the palms of her hands until it is formed into a flat disk. This is dusted with ashes, fitted over the form, and molded into shape with a smoothing stone, the material meanwhile being turned around and around with the hand. It is next removed, the form again dusted with ashes, and the clay replaced, then patted flat and even with the curved paddle. The hands are dipped into water and the surface smoothed all over. The bottoms of smaller pieces are shaped by hand, without the use of a form.

The base of the vessel now completed, the potter removes it from the form and sets it right side up to dry for a time in the sun. Another piece is usually worked upon while the first is drying, in order that there may be no delay. The paddle, anvil, and smoothing stones are dropped into the water container to soak for a few moments. When ready to start building up the sides of the vessel, the potter moistens its upper edge, then twists and coils a piece of cloth into a base on which to rest her work.

In beginning the process of coiling, a lump of clay about the size of that used for the base of the vessel is divided in half, each portion being moistened and kneaded thor-

[1] Frank Russell, *The Pima Indians* (Bureau of American Ethnology. Twenty-sixth Annual Report, 1904–05. Washington, Government Printing Office, 1908).

13:Davis E-5 (1920)1920 NU28 Papago NU28

INTRODUCTION

●114

THIS account of the fiesta of Vĭkĭta is based on personal observations among the Papago of Sonora, Mexico, in the summer of 1920. The legend of "Montezuma" was related by Kiâ'hâd (Rainbow), a Papago living three miles north of the international boundary, and was interpreted by Joseph Menager.

The "Montezuma" herein referred to must not be confounded with the personage of the same name so prominent in the annals of Mexico at the time of the conquest, but, like other sedentary people in our Southwest, the Papago have adopted the name through the Spaniards, and have applied it to one of their culture deities.

EDWARD H. DAVIS.

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14: Kroeber B-4 (no date) 1912
NU28 Papago NU28

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TRADITIONS OF THE PAPAGO INDIANS

BY HENRIETTE ROTHSCHILD KROEBER

101 114 THE Pima Indians of Arizona, and the adjacent Papago of the same State and of Sonora, are regarded as distinct tribes, but are said by themselves to be so nearly identical in language and customs, that they seem to go back to a common origin of no great antiquity. All that is known of their mythology points to similar close affiliations. The largest collection of traditions assembled, though it is clearly only an outline, is by Frank Russell, from the Pima.[1] An older sketch is by Grossman.[2] Further information as to the beliefs of the same tribe is given by Bancroft[3] and the writer.[4] The Papago live in more forbidding and less accessible localities, and less is known of them. Davidson[5] provides a distorted account of their creation story, which Bancroft[6] repeats, and the author has contributed "Coyote Tales" to the Journal of American Folk-Lore.[7] The traditions now presented were obtained from Juan Dolores, an educated full-blood member of the tribe. It appears, from the manner in which his first story tallies with the others mentioned, that both Pimas and Papagos possess an important and interesting myth of the origin of the world and of themselves, in which many incidents are told in the same form, and in which Earth-Maker or Earth-Doctor and Older-Brother are the leading personages or gods, with Coyote filling a different and subsidiary place.

OUTLINES OF THE CREATION MYTH

539 In the beginning there was nothing but darkness and water. The darkness, the water, and the air composed the whole universe. As

[1] *Twenty-sixth Annual Report, Bureau of American Ethnology*, pp. 3–390 (1908). See pp. 206–250.

[2] F. E. Grossman, "The Pima Indians of Arizona," in the *Smithsonian Report* for 1871 (1873), pp. 407–419.

[3] H. H. Bancroft, *The Native Races of the Pacific Coast*, vol. iii (1883), pp. 78–80.

[4] "Pima Tales," in *American Anthropologist*, new series, vol. x (1908), pp. 231–235.

[5] *Report of the Commissioner of Indian Affairs*, 1865, pp. 131–133.

[6] Work cited, pp. 75–77.

[7] Vol. xxii (1909).

THE VIKITA CEREMONY OF THE PAPAGO

By Julian Hayden

796 In November, 1936, a dance, marking the end of a four year period, and apparently combining a harvest ceremony with a rain dance and possibly a commemoration of the sacrifice of the children, was held at old Santa Rosa, Papagueria. The dance, scheduled for 1935, but for some reason deferred till 1936, began November 1 at old Santa Rosa and continued there for ten days. On November 11 a ceremony was held at the shrine of the children, west of old Santa Rosa. A second ten day dance began there on the twelfth, reaching its climax and its end on Saturday, November 21. The following is an eye-witness account of events taking
114 place from twelve noon Friday, the 20th, to the end at four PM, Saturday, November 21.

Our party, composed of Charlie R. Steen, Junior Naturalist, Southwestern Monuments, Isabelle Pendleton and Julian D. Hayden, of Pueblo Grande, Phoenix, Arizona, reached Anegam, a large Papago village about two miles north of new Santa Rosa, at twelve noon on Friday. Stopping on the south border of the village, we heard singing and jangling of
[493] bells in the brush nearby, and saw wagonloads of Papagoes in holiday dress driving into the brush in the direction of the singing. A passing vaquero told us that it was permitted for white men to witness the dancing, so we followed a trail through the mesquite into a clearing, in which stood a dozen or more wagons, each with its family sitting in it or standing nearby.

796 In the clearing was a circular enclosure of tall arrowweeds, about
[417] ten feet in diameter, with an opening on the east side. A group of eight masked and costumed men was dancing in front of this enclosure, attended by a line of thirteen male singers, in work clothes, each man or boy with the half of a gourd tied over his face. Within the enclosure were several old men, also in work clothes, who apparently supervised the distribution of the articles carried by the members of the chorus. These, with an old man-outside, seemed also to direct the dancing, correcting steps and gestures.

COSTUMES

796 Since the costumes of the masked dancers were the same, except for
292 minor individual variations, as those worn on Saturday, they are described
536 now. All wore great headdresses of turkey tail feathers, arranged in a
[237] clump tied to the top of the masks. Long feathers, one on either side of the clump, made by tying two or more feathers end to end, with white and in some cases red downy plumes tied to the upper ends, stood erect and waving above the headdress proper. The sack-like masks of deerskin or canvas had small eyeholes and a mouthhole, reached down over the shoulders, and had deeply fringed lower borders. The faces of these

17:Castetter & Underhill N,E-5 (1931-1934) 1935
NU28 Papago NU28

for who had dreamed of badger, rabbit, or eagle, and could sing songs to remove their power. If a rule had been broken, the ceremony must be gone through again beside the sickbed.

The Papagos, it is obvious, believed in the power of songs and dreams to a high degree. But they were not mystics. They were, and still are, a highly practical and industrious people whose days are spent in labor, while their artistic impulse finds its release in the singing of Elder Brother's songs and the composing of new ones to supplement them.

The collection of specimens and study of techniques were done during four visits to the Papago country, extending from July to October, 1931, August to October, 1932, February to October, 1933, and November to December, 1934. These visits were financed by successive grants from Columbia University in connection with a larger ethnographical study.

The authors wish to express their genuine appreciation to Dr. J. J. Thornber and some of his students at the University of Arizona for identifying numerous plant specimens. Special thanks are also due Dr. Thornber for assistance in providing certain information, particularly in connection with the cultivated plants. To Ellen Wright Castetter we are greatly indebted for assistance in the preparation of the manuscript.

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In the following pages, the Papago words have been spelled according to the recommendations of the Committee of the American Anthropological Association on the Phonetic Transcription of Indian Languages (Smithsonian Miscellaneous Collections, Vol. 66, No. 6).

The vowels *a*, *i*, *o*, *u*, are pronounced roughly as in Spanish or Italian. The vowell *ï* is an unrounded central vowel whose sound approximates that of *i* in English *sir*. *p*, *t*, *k*, at the beginning of a word are pronounced without the aspiration which follows them in English; their sounds

17:Castetter & Underhill N,E-5 (1931-1934) 1935
NU28 Papago NU28

If the liquid be drained off completely there remains a dry mass of fiber and seed which is further dessicated on the housetop. It is then beaten with a stick to separate the seeds and these are parched and stored; they may be used to make meal cake or as chicken feed. One final product from the giant cactus is oil, which can be extracted from the seeds by parching them, grinding and adding water, after which a small quantity of oil comes to the surface. The pulp, instead of being disposed of as described above, may be sun-dried, stored, and cooked up as needed to make syrup, or it may be eaten dry or after being moistened with water (25).

The smaller fruit of the organ pipe cactus or pitahaya *(Lemaireocereus thurberi)* is as highly prized as that of the giant cactus and may be treated in the same way. It is less common, however, and grows only in the southern part of Papagueria and in parts of modern Sonora. It fruits twice a year and its many low branches are so plentifully covered that the Papago name for Milky Way is "the second harvest of Pitahaya."

The word *pitahaya* was used rather loosely by the Spaniards as a name for several of the tall cacti of Spanish America, together with their fruits including the sahuaro *(Carnegia gigantea)*. Perhaps the earliest reference to the pitahaya is one quoted by Bancroft (1) who states that Juan de Oñate, conqueror and governor of New Mexico, while on an exploratory journey westward from his headquarters on the Rio Grande in 1604, reported that he at length came to a country where the "tierra caliente began to produce the pitahaya." Padre Kino (3), the Jesuit friar, whose explorations from 1687 to 1710 covered southern Arizona as far west as the Colorado River, recorded in his memoirs the use of cactus fruits by the Indians of that region.

The Papago distinguish two kinds of edible prickly pears *(Opuntia* sp.), one of which produces chills and nausea in susceptible people. Groups of women pluck the

18: Kelly E-4.5 (no date) 1963 NU28 Papago NU28

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"Whereas, the Papago Development Program was conceived and written with only a minor consideration of the relationships between the Papago people and their reservation to the rest of Southern Arizona; and

"Whereas, Southern Arizona is one of the fastest growing regions in the nation; and this growth, both economic and in terms of population increase, cannot help but influence the direction in which Papago life will move in the future."

Reliable information is, of course, required in the preparation of any long range areal program. The need for such a program for the Papagos requires no special study. The most casual acquaintance with the reservations discloses the general nature of the depressed economic conditions which have merely been documented and measured in this report.

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A great many individuals have assisted in gathering the material upon which this report is based. Primary recognition must be given to Dr. Robert A. Hackenberg who, as assistant director of the Bureau of Ethnic Research, was in charge of the project which produced our Papago Population Register. His chief assistants were Frank DeMeritt, Charles Cook, William S. King, Ella Rumley and Beverly Solheim. Richard B. Woodbury and Nathalie F.S. Woodbury collected most of the material on reservation farming and stock raising. Harland Padfield both conceived and executed the study which has provided the data for our analysis of Papago employment on Pima County farms. Richard Jones made the study of Papago welfare and, using some material previously collected by Delmos Jones, gathered and wrote the material for the section on Papago reservation settlements. Charles Hoffman and Peter Hemingway secured the data on Papago reservation wage workers as well as some other information, including additional data on reservation agriculture. Peter Hemingway also performed the remarkable feat of sorting the many thousands of I.B.M. cards to produce the data for our employment tables within three weeks of the time he first saw an I.B.M. machine. Maps were prepared by Frances Benmayor and Richard Woodbury. Last minute editing, correcting, tabulating and trouble shooting was the very competent hands of Patricia Anderson. The

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000 loyalty, generosity and competence of all these people have made my work comparatively easy. I thank each one, and promise each one a future world where they can work longer hours for little or no pay since these are the two things they all seem to want.

122 Mr. Thomas H. St. Clair, superintendent of the Papago Agency, his predecessor Mr. Harry Gilmore and the heads of the various agency departments have [114] been consistently and generously helpful in our work. Much of the data, as a matter of fact, was gathered and tabulated by members of the agency staff.

[123] Mr. Eugene Johnson, Chairman of the Papago Tribal Council, and his predecessors Mr. Mark Manuel and Mr. Enos Francisco, have not only given direct assistance but have explained and endorsed our work on the reservation so that interviews with Papago families were carried out smoothly and pleasantly. Our thanks also go to Mr. Edward J. Sullivan, administrative assistant to the tribal chairman, who provided us with [illegible] help from the tribal office.

W.M.K.

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quickly grew up at such locations as Quijotoa (Covered Wells), Alamo, and San Antone (formerly Weldon, with a population said to have reached 11,000 at one time). One by one the mines were worked out or failed, and although the mining communities were rapidly deserted, the improvements to the water supply enabled Papagos to occupy the locations advantageously wherever elaborate well machinery was not needed. [312] [311]

After the Civil War, the combination of growing Papago herds and numerous ranches established by white settlers resulted in substantial increase in the stock grazed in the area now included in the Papago Reservation. Papago "depredations" in the 1890's caused some ranchers to abandon the area, their losses being alleged to have been $300,000 in stock and improvements. Lumholtz reported in 1909 that several Papago stock men had herds of about 200 cattle and 50 horses, in excellent condition, in the western slopes of the Baboquivari Range. Nevertheless, Indian cattlemen and farmers were not secure in their land and numerous large tracts were held by non-Indians. 175 233 [648] [422]

A complete history of the establishment of the three Papago reservations is provided by a Bureau of Indian Affairs report (1944): 175 657 13 [114]

> "The first reservation for the Papago Indians was established at San Xavier on July 1, 1874, and the second at Gila Bend on December 12, 1882.... An Executive Order of June 17, 1909, reduced the size of the Gila Bend Reservation.

Population Conclusions. Two very clear trends are indicated in our analysis of the total Papago population: (1) Papagos have been moving off the reservation in ever increasing numbers during the lifetime of the present population and (2) contact with the outside world has accelerated the intermarriage of Papagos with non-Papagos. Data, not here reported, shows that the majority of these marriages are between Papagos and members of other Indian tribes.

In addition to the more or less permanent residence shift indicated above, data to be presented in Chapter IV will show a high rate of seasonal and temporary movement off the reservation.

In his preliminary report on the Papago Population, prepared in 1961, Dr. *Robert A.* Hackenberg prepared an analysis respecting the transitional position of the Papago midway between reliance upon the institutions of native society and the acceptance of the alternatives provided by Federal programs and the opportunities in the surrounding non-Indian off-reservation areas. The following analysis is from his report and is in no material respect altered by the more precise information gathered during the past two years.

Age Distribution. The significance of the age distribution developed from the 1959 figures may be seen through the comparisons made in the following table.

18: Kelly E-4,5 (no date) 1963 NU28 Papago NU28

CHAPTER III

RESERVATION ECONOMY

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Stock Raising. From the point of view of natural resources, the main Papago Reservation in its present state of development can be described in two words: cattle range. Approximately 15,000 head of cattle and horses are grazed on the reservation producing an estimated annual gross income of $650,000. [434]

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The introduction of cattle to the Papago country has been summarized in some detail by Wagoner (History of the Cattle Industry in Southern Arizona, 1540-1940). He points out that Coronado's large herds of cattle and sheep, brought northward in 1540, were steadily reduced in numbers, and it is probable that none of those that escaped or were abandoned on the march survived as the basis for wild herds and flocks in the 16th and 17th Centuries. Nevertheless, before 1700 there were some 100,000 head of cattle in northern Sonora. How far north any of these herds drifted is not known.

The Papago livestock industry really begins with the systematic development of ranching by Father Kino in the 1690's and early 1700's, but numbers seem to have continued

the Papago soon after 1900. Unlike other Arizona tribes, 175 233
who acquired cattle in significant numbers only after formal
programs for cattle raising had been introduced by the Bureau
of Indian Affairs, the Papago created their own livestock
economy. Gwyneth Harrington provides a very interesting [114]
account of the process (Harrington, 1938). The incorporation 175 178
of cattle raising as a part of Papago native culture, compares 233
with the Navajo sheep raising economy, and accounts for a great
deal of the resistance to change on the part of both tribes:

> "In the time which elapsed between the abandonment of Father Kino's missions and the founding of the Papago Indian Reservation in 1917, the Papago had plenty of time, about ~~two~~ hundred years in all, to become accustomed to the use of cattle and horses, adjust themselves to the new occupational elements, and assimilate the industry into the family, social, and economic structure of the tribe at their own tempo, without interference.
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> "The old hunting range became the cattle range of the Papago settlement. Hunting was not entirely abandoned, and still has some place in the Papago economy; but in the southern districts the economic emphasis shifted early to cattle raising. [224]
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> "The cattle of all the family were herded together, and the enterprise was conducted under the orders of the family head. The family hunters, usually one or two men to a family, gave place to one or more of the younger men appointed by the patriarchal head of the family as cowboys. These men took care of the cattle, while, as often in the case of hunters, the others did their share of the farming, and provided for their other needs in return for the specialized work of hunting or care of cattle.
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> "Each village chose a local stockman to direct the village round-ups and cattle sales. His work was voluntary, unpaid, and a position of some prestige, almost equal to that of the Hunt Chief, whose position was falling into disuse." [554] [463]

241 The survey records 536 acres that are now being farmed,
311 or have very recently been farmed, out of a total of 4,466
634 acres available for flood water farming in this area. The location and approximate size of these plots, both farmed and idle, are shown on Map 8.

241 Although yields could not be determined, the crops
178 grown on many plots were recorded, indicating an overwhelming preference for corn, beans, and squash, the ancient and traditional food crops of prehistoric Indians in the Southwest. Watermelons, wheat, milo, peas, and a few other crops, are grown in very small quantities. Thus the chief function of these farms is subsistence which, in fact, is a return to earlier times since as recently as 20 years ago cash crops of winter wheat were grown on much of this same land.

[114] In an effort to determine whether or not a similar
[101] decline in flood water farming has occurred in other areas
[311] of the reservation, a brief study was made by the Bureau of Ethnic Research in the Santa Rosa, Chuichu, and Gu Vo areas.
241 The situation as it exists in the southeastern section of the
311 reservation was found to be the same in these areas. Indi-
178 vidual farmers were working less than ten acres each and often only one or two. In each case there was a reduction in the size of family plots when compared with former years and, as in the southeast, many families had abandoned flood water farming altogether.

the three reservations. Thirteen years later, in 1962, the amount of land used had decreased even though, at San Xavier, non-Indian farmers had been brought in to use idle land. Falling markets, a falling water table, and rising costs are perhaps the principal contributing factors in the failure to proceed with plans for the development of Chuichu. The almost complete abandonment of farming by San Xavier families has not been explained. Relatively small Indian holdings, continued division of the land among heirs, and the preference for wage work over subsistence farming are probably the primary contributing factors.

The prospect for a greater development of agriculture on the reservations has not, however, been abandoned by the Indians nor by students of agricultural economics. Mr. William H. Metzler, who conducted a study on the reservation during 1958 and 1959 for the Department of Agriculture, has estimated from a preliminary report by the U. S. Geological Survey that about 15,000 acres of land on the Papago Reservation could be irrigated from deep wells. He goes on to say (Metzler, 1959, pp. 46-7):

> "Less than one per cent of the approximately 3,000,000 acres in the reservation is adapted to crop production. Probably half of these 30,000 acres could be irrigated, the rest could be made suitable for flash flood farming. It is probable, however, that the Papagos do not need that much land for flood plain farming. Probably fewer than 300 families would engage in it and most would require only three to five acres each.

force, compared with 68% among those living off the reservation. The difference is in the number of Papagos who are unemployed or who live on unearned income: 358 with unearned income live on the reservation, compared with 32 off the reservation and 174 unemployed persons live on the reservation, compared with 80 off the reservation. 162 464

Employment and Education, Age and Origin. Among the administrative population, 19 years of age and older, 34% has had no education or has not gone beyond the fourth grade in school, 39% has had a fifth grade through eighth grade education, and 28% has had one year of high school education or more. Less than one percent has attended college and less than one percent has had formal vocational training. Comparable percentages for the United States as a whole in 1939 among individuals 18 years of age and older are: no education or less than five years, 7%, up to eight years of education, 27%, up to twelve years of education, 48%. Sixteen percent of the adult United States population has attended or completed college, (U.S. Bureau of the Census, 1939). 162 871 [191]

The Papago level of education is no surprise when the history of formal education on the reservation is known. It does come as somewhat of a surprise, however, to learn that Indians with a few more years of education find better jobs and steadier jobs than those that have had less than four years in school. The data are in Tables 19, 20, and 21. The reason can perhaps be traced to better facility in English which would be expected of the Papagos who have received an education beyond the fourth grade. The data, however, are contrary to similar information secured on the Colorado River Reservation (Kelly, 1939). Seasonal agricultural workers have a lower than average percentage of individuals who have completed the fourth grade while non-agricultural wage workers are above the average. Only seven percent of the skilled off reservation wage workers have had less than five years in school (See Table 20). 162 871 464 [191] [114]

[text continues on P. 109]

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Papago Agricultural Workers in Pima County. Agricultural work off the reservation is of such great importance to Papago family economics that we felt it necessary to make a special study of this subject. The project was planned and executed in 1961 by Mr. Harland Padfield, a Department of Anthropology graduate student who is an authority on this subject. Unfortunately, the study was limited to Pima County since funds did not permit the extension of the research to other sections of southern Arizona.

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Mr. Padfield was able to establish two points: (1) Papago Indians in farm work are shifting to other jobs than seasonal cotton picking and are not being displaced because of mechanization, (2) they account for 30 percent of the total man-hour input and 27 percent of the total wage input on Pima County farms and receive total annual earnings of about $630,000. The evidence, although not conclusive, also indicates that there is a steady increase in the training and use of Papagos in the operation of farm machinery and in other skilled jobs.

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The author concludes his report with the following words: "These data should make it patently clear that with the Papago Reservation virtually surrounded by 370,000 acres of farm land needing a labor force in excess of 10,000 workers and a labor expenditure probably in excess of $13,000,000 annually, programs and policies aimed at the problem of Papago economics cannot ignore farm labor; neither can programs and policies aimed at the problem of farm labor ignore the Papago Indians."

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Padfield's work was based upon an area sample which permitted him to generalize from detailed interviews with 21 of the 119 farm operators in Pima County with a total acreage of 29,796 out of 66,873. Data thus collected was supplemented through interviews with crew leaders who recruited the seasonal workers, mostly cotton pickers, for the farms drawn in the sample.

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464 Changes in Papago Job Participation. With reference to Table 24, Padfield points out that Papago participation in Pima County farm work is roughly equal in all categories--107,004 man-hours in "direct permanent", 111,330 man-hours in "direct temporary", and 116,220 man-hours in "indirect" (i.e., seasonal labor contracted by crew leaders). The following discussion of this point and other data developed by Mr. Padfield are taken directly from his final report.

From all accounts traditional Papago off-reservation work in the past has been seasonal work, chiefly in cotton (Dobyns, 1950). In 1961, Papagos supplied not only a significant (one-third) proportion of all farm work in the county, but two-thirds of this large proportion of work in 1961 was not seasonal--admittedly not altogether permanent, but not seasonal. Thus either these earlier [114] impressions are erroneous or there has been a marked trend toward more permanent and/or more highly skilled farm jobs in the past ten years.

The growers themselves tend to support this inference in that over half of the 21 comprising the sample said that they were using Indians in more skilled jobs, with only one grower saying that he was using them in less skilled jobs.

The individual employment records of 43 Papagos also tend to support this inference in that 32 percent of them show an advancement in job skills with the rest showing no change either way.

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463 The Status of Hand Labor. Our data (Table 24) indicate that seasonal
464 hand labor still accounts for one-third of all the man-hours of farm work in Pima
[114] County. This leads us to question the assumption that agricultural hand labor will shortly be a thing of the past, and that Indians depending on income from hand labor are ipso facto displaced workers. This phenomenon is far more complicated than that.

463 In the first place, seasonal hand work is by no means all the hand labor
464 expanded on farms. Much of all crop production activity is still hand--irrigating

the process of job upgrading which has moved other ethnic groups from seasonal farm work to temporary and permanent farm work to urban industrial employment. 463

Papago Welfare Programs. There is little or no evidence that Papago Indians have taken undue advantage of welfare programs. On the contrary, there is much evidence that state and federal welfare payments make the difference between complete and painful poverty and a bearable standard of living for many reservation families. This last statement holds particularly true for the old people--close to 60% of all welfare payments go to individuals over 65--who are especially vulnerable under modern conditions. 657 511 [888]

To learn more about this problem, and its place in reservation family economics, Mr. Richard Jones, graduate research assistant in the Bureau of Ethnic Research, was assigned the task of gathering and analysing necessary data. His work was thorough, covering all phases of welfare administration, welfare costs, and the effect of welfare on Indian families. A summary of his findings is given below. 114 121

Information gathered from the Indians themselves very obviously gives an undercount of welfare cases. We report a total of 390 individuals (on and off reservation) who received unearned income in 1959. The official number of cases, reported by Jones for reservation residents alone for 1959 was 448. We report a total of 206 individuals over the age of 65 receiving unearned income while Jones reports 266 cases of Old Age Assistance (59%). 657 128

It is not likely that Papagos would deliberately withhold information on welfare. The difference is probably to be found in the welfare cases among the 980 on whom we have no employment data, and in the reporting of individuals receiving welfare as "unemployed". In any event, we were forced to depend upon informants since welfare information, which identifies the recipient, is confidential and so not available to us.

19: Dobyns E-5 (1950) 1951 NU28 Papago NU28

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122 The information reported herein was mostly gathered first-hand by the auther, primarily between October 1 and December 15, 1950, under the sponsorship of the Department of Anthropology, University of Arizona. Dr. Emil W. Haury, Head of the Department, furnished greatly appreciated encouragement and arranged for film to make a photographic record. Dr. Edward H. Spicer, Professor of Anthropology, guided the research and reporting after furnishing the original inspiration for the project and proposing it to the Indian Bureau. Any deficiencies in this report --and there are many-- are not the responsibility of these men. They are due to the writer's failure to investigate as well as he has been trained to do, and a lack of sufficient funds to investigate as thoroughly as he would have preferred. This last deficiency may be charged to the failure of the American public to appreciate the necessity for social research to sound public administration, as expressed in failure of Congress to appropriate to the Indian Bureau adequate research monies.

122 For their assistance in making this report as good as it may be, the writer is grateful to Drs. Spicer and Haury. I am indebted to the U. S. Indian Bureau and Mr. and Mrs. W. A. Pottenger for help in financing my research, and to the Board of Regents of the University and State Colleges of Arizona for its approval of the project. My thanks also go to the Anthropology Club at the Univesity of Arizona for use of its mimeographing facilities for quick preparation of this paper. *Principal credit for any excellences in this report belongs to the farmers and the Papagos who patiently answered many questions.*

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